THE UNIVERSITY OF CHICAGO

# ROUND TABLE

# WAR MEDICINE

GIFT OF THE
LIBRARY OF THE
OCT 21 1943
WOMAN'S COLLEGE
UNIVERSITY OF NORTH CAROLINA

1 *Radio Discussion by* ALEXANDER BRUNSCHWIG
MORRIS FISHBEIN *and* RALPH GERARD

02D BROADCAST IN COOPERATION WITH
HE NATIONAL BROADCASTING COMPANY

*UMBER 290* * * * OCTOBER 10, 1943

# *Around the Round Table . . . .*

ALEXANDER BRUNSCHWIG, professor of surgery and roentgenology at the School of Medicine of the University of Chicago, received his B.S. and M.S. degrees from the University of Chicago. His degree of Doctor of Medicine he received from Rush Medical College in 1927. Dr. Brunschwig is a member of the American Surgical Association, the Society of University Surgeons, the American College of Surgeons, and the Society of Clinical Surgery. He has written numerous articles on various phases of surgery and cancer and is the author of *Surgery of Pancreatic Tumors* (1942).

MORRIS FISHBEIN, editor of the *Journal of the American Medical Association* and lecturer in the School of Medicine of the University of Chicago, received his B.S. degree from the University of Chicago and his M.D. from Rush Medical College. He is also the editor of *Hygeia* and of the *Society of Medical History Journal*, and he is medical editor of the *Encyclopaedia Britannica*. Dr. Fishbein is serving as chairman of the committee on information of the Division of Medical Sciences of the National Research Council. Dr. Fishbein is the author of many articles and books, among which are: *Handbook of Therapy* (with Oliver T. Osborne) (1915); *Medical Follies* (1925); *Shattering Health Superstitions* (1930); *Frontiers of Medicine* (1933); *Syphilis* (1937); *Your Diet and Health* (1937); and *Do You Want To Be a Doctor?* (1939).

RALPH W. GERARD, professor of physiology at the University of Chicago, is a native of Harvey, Illinois, and was educated at the University of Chicago, where he received his B.S. and Ph.D. degrees. Dr. Gerard is also a medical doctor and received his M.D. degree from Rush Medical School in 1925. After his graduation from Rush, Dr. Gerard spent two years as a National Research Fellow in London and Berlin studying the activity of nerves. Since his return to this country, he has been associated with the University of Chicago and has been particularly interested in the study of nerves and the brain. Dr. Gerard has been a pioneer in nerve chemistry and the study of brain waves. He is the author of *Unresting Cells* (1940) and *The Body Functions* (1941), and he was a contributor to *Freedom: Its Meaning* (1940), edited by Ruth Anshen.

# WAR MEDICINE

•

Dr. Gerard: War medicine! Two words could hardly be more opposed, for medicine's whole objective is to save life and war's purpose is to take it. Nonetheless, without medicine war would be a much more severe story than it is.

Dr. Fishbein: That is true. Just last week General Kirk of the Army Medical Corps and Admiral McIntyre of the Navy's Bureau of Medicine and Surgery told me that advance and maintenance of the morale of our troops would hardly be possible without their knowing that our medical department was riding right along with them. I believe Dr. Brunschwig's information regarding the treatment of wounds will sustain that point of view.

Dr. Brunschwig: Most convincing evidence of this improvement is afforded by the fact that, during the last war, 7 per cent of those soldiers admitted to hospitals because of wounds died. So far, in this war, less than 1 per cent of all those admitted to hospitals for wounds have died.

Dr. Gerard: Gentlemen, I think that it would be very useful to take up the scientific advances that have led to the differences between the past and the present.

Dr. Fishbein: That means that we compare the results in relation to disease and death in previous wars with the results in this war.

Dr. Gerard: One thing that is perfectly obvious is that practically until the beginning of this century, in every war that was ever fought, bugs killed more soldiers than bullets. Let me quote what Dr. Zinsser, the biographer of typhus fever, said about it: "Soldiers

have rarely won wars. They more often mop up after the barrage of epidemics. Typhus, with its brothers and sisters—plague, cholera, typhoid, dysentery—has decided more campaigns than Caesar, Hannibal, Napoleon, and all the inspector generals of history."[1]

DR. BRUNSCHWIG: We have some specific information about certain campaigns and their disease death rates, do we not?

DR. GERARD: It is a dramatic story, all through history, but let me just mention that, when Naples was being besieged about four hundred years ago, it was not the might of the defenders that turned back the besiegers but typhus fever. In our own Civil War the figures for the northern troops showed that forty-four thousand were killed directly in battle, forty-nine thousand died of wounds, and one hundred and eighty-six thousand died of disease.

In World War I disease was beginning to come under control. Yet, even after that, there were some three to five million deaths from typhus fever and over twenty-two million deaths around the world from influenza.[2]

DR. FISHBEIN: That reminds one, by contrast, of the fact that the first evacuation hospital at Salerno received twenty-three

---

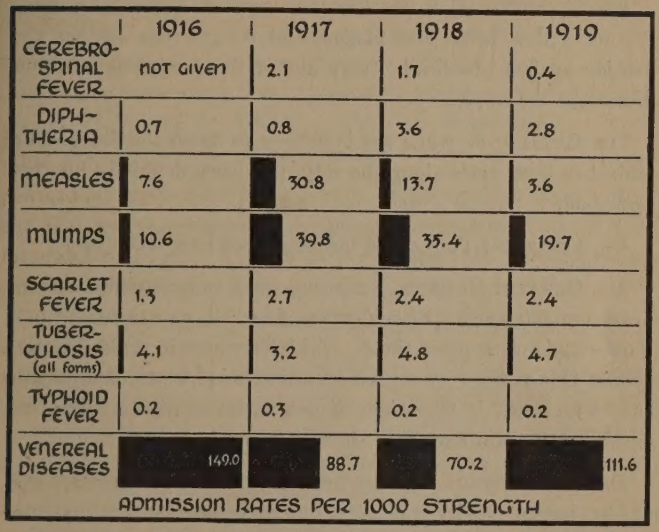
[1] Dr. Zinsser goes on to say: "The epidemics get the blame for defeat, the generals the credit for victory. It ought to be the other way round—perhaps some day the organization of armies will be changed, and the line officer will do what the surgeon-general lets him do . . . ." (Hans Zinsser, *Rats, Lice and History* [Boston: Little, Brown & Co., 1935]).

[2] In the Mexican War of 1840 there were 15 deaths per thousand troops in battle, compared with 110 disease deaths; in the Civil War there were 33 deaths per thousand in battle and 65 per thousand from disease; in the Spanish-American War there were 5 battle deaths per thousand to 26 disease deaths; and in the first World War there were 53 battle deaths per thousand to 19 per thousand from disease. (See illustration on pages 14–15.)

*The University of Chicago* ROUND TABLE. *Published weekly. 10 cents a copy; full-year subscription, 52 issues, two dollars. Published by the University of Chicago, Chicago, Illinois. Entered as second-class matter January 3, 1939, at the post office at Chicago, Illinois, under the Act of March 3, 1879.*

# INFECTIOUS DISEASES

## Navy, 1916–19




Source: Clara E. Councell, "War and Infectious Diseases," *Public Health Reports*, Vol. LVI, No. 12 (March 21, 1941). The above figures are admission rates for the entire Navy for certain infectious diseases during the years of active war and before and after.

hundred wounded, among which there were only twenty-three deaths out of those twenty-three hundred wounded.

Dr. Brunschwig: With regard to epidemics, medical officers of the United States Army Medical Corps pioneered in epidemic prevention among troops on duty.

Dr. Gerard: What was that story?

Dr. Brunschwig: From 1907 to 1909 Colonel Frederick Russell of the United States Medical Corps first showed, on a large scale, that inoculation of typhoid vaccine in over twenty thousand troops

mobilized effectively prevented typhoid from becoming an epidemic.

DR. FISHBEIN: Now we inoculate against typhoid, smallpox, typhus, yellow fever, and plague, and we give our soldiers prevention against practically every one of the dangerous infectious diseases of the tropics.

DR. GERARD: So when our inductees go down the line and are jabbed in both arms along the way, it is very definitely for their own good.

DR. FISHBEIN: They could not be jabbed in a better cause.

DR. GERARD: However, we do not want to be satisfied that we have complete control of epidemics. After all, we can handle only those—and only some of those—which have been in medical history before. One of the very regular occurrences in history, and particularly with wars, is the origin of new types of disease. New epidemics, every now and then, show their heads.

DR. BRUNSCHWIG: We have been fortunate so far in this war in not having any major epidemics, but we cannot be sure that they will not develop before the war is over.

DR. FISHBEIN: One reason that we think we have them controlled is the fact that the Committee on Epidemiology of the Division of Medical Sciences of the National Research Council is very much on the alert for every symptom of anything that might be a new disease or a new epidemic.

DR. GERARD: The respiratory diseases are offering the greatest problem for the present time, are they not?

DR. BRUNSCHWIG: Yes, I think so. But research in that field, especially in the problem of air infection, is going on to a greater extent than ever before, and it is quite possible that these might be prevented.

DR. FISHBEIN: Really, the only fairly serious things in the way

of outbreaks that we have had have been virus pneumonia and meningitis and some dysentery in North Africa.

DR. GERARD: The virus pneumonia is a beautiful example of what we were saying. We seemed to have gotten pneumonia completely under control with antisera and with the sulfa drugs, and then, here comes along a new type that we have not met before against which none of the old controls is as yet effective. Fortunately, it is not a very lethal epidemic.

DR. FISHBEIN: What I think most people want to know is just how their boy out fighting at the front is going to be cared for if he gets wounded. I think that all of us know that the handling of the wounded is the problem that is in the mind of most people.

DR. GERARD: How has that service been streamlined?

DR. FISHBEIN: That is one of the most remarkable developments of the war—the time factor in getting the Medical Corps' man right up to the wounded boy as soon as possible and getting him back to the evacuation hospital or as far back as we can into good medical care. That all means airplane evacuation.

It is obvious that medical care has been mechanized just like warfare. I have seen a truck drive up in one of our training camps, a lot of boys jump out, and in twelve minutes they have set up a lead-lined room and a complete X-ray equipment.

DR. BRUNSCHWIG: In addition to rapid evacuation, modern methods for the treatment of wounds have yielded excellent results. For example, soldiers have been taught to begin the treatment themselves. A man who is not unconscious and is still capable of caring for himself up to a point is equipped to apply a compression bandage to stop hemorrhage; also he has a sulfa drug to administer to himself either by putting it on the wound or by taking it by mouth; and another very important thing is the fact that he has a small syringe with a dose of morphine to alleviate pain.

DR. GERARD: Is that safe to give to the troops themselves?

Dr. Brunschwig: Yes, indeed. The dose is just enough to ameloriate his suffering—no more. Therefore, the first-aid treatment really begins with the soldier himself. That is an innovation of this war.

Dr. Fishbein: That is the reason that at Guadalcanal less than 1 per cent of those who were wounded and who were not killed outright were lost. In many instances, in just a few hours they were in a hospital more than three hundred miles away from the place where they were wounded.

Dr. Gerard: Is that figure three hours from the battleground to a base hospital by airplane?

Dr. Fishbein: It actually is three hours from the evacuation hospital, not directly from the battleground.

Dr. Gerard: Conversely, one hears stories of the "circus-tent" technique in bringing the large hospitals right to the front. At Salerno a two-hundred-bed hospital was dumped on the beach, and within two hours they were receiving wounded. It is an amazing achievement.

Dr. Fishbein: That is where they have the remarkable results that I have just referred to.

Dr. Brunschwig: In connection with wounds, another important factor—and, I think, one that perhaps is not ordinarily considered in this connection—is that in the sands of North Africa and in some of the South Pacific islands the terrain was relatively clean.

Dr. Gerard: That has to do with the question of infection of wounds, does it not?

Dr. Brunschwig: Yes. It is popularly thought that wounds are infected from without. Of course, in any action on a fertilized field, especially where the fertilizer is of animal origin, wounds are contaminated by this soil and will be infected.

Dr. Gerard: That is why we had so much gas gangrene in the last war and have not heard of it in this war.

Dr. Brunschwig: I think that that is true.

Dr. Gerard: Or is it a matter of the sulfa drugs?

Dr. Brunschwig: I think that the sulfa drugs are of great importance. One interesting factor that has been realized is that infections of wounds are often brought about by the patient himself, through touching his wounds or from the patient's own clothing.

Dr. Gerard: Of course, he cannot help touching himself if he has got to stop some bad bleeding, can he?

Dr. Brunschwig: That is true. But if the fact is that the soil on the outside is not the source, but rather his own clothing and the carelessness of the attendants, a great deal of prophylactics might be developed.

Dr. Gerard: Let me ask what the records from the front show in regard to the use of the sulfa drugs? As a laboratory man, I confess that occasionally I feel that these tremendously enthusiastic reports of its universal effectiveness sound a little bit like patent-medicine ads.

Dr. Fishbein: There are occasional disappointments, but it would be impossible to praise too greatly the tremendous gains that have been made in the use of sulfa drugs, not only in the treatment of wounds, but also in the treatment of all sorts of infections.

There have been published, within the past few weeks, reports of meningitis in some of our camps—comparing a 17 per cent death rate in World War I and a 3 per cent death rate in this war. That change is due to the sulfa drugs. In fact, we have abandoned all treatment for meningitis, including serum treatment, and depend on the sulfa drugs.

Dr. Brunschwig: In addition to the local treatment of wounds, perhaps of equal importance is the treatment and prevention of shock.

DR. GERARD: Before you go on to that, Dr. Brunschwig, I would like to add that I do not suppose there is enough evidence yet to demonstrate entirely the effectiveness of penicillin. There has not been enough used yet, has there?

DR. BRUNSCHWIG: No, that has not been used on a large scale yet. The quantity is too small, and much experimental work remains to be done.

DR. GERARD: Right. I am sure that all our listeners and readers will be especially interested in the question of shock and hemorrhage, because many of them have been contributing their own blood to make plasma for the treatment of it.

DR. FISHBEIN: Regardless of the education by the Red Cross and many other agencies, a good many people do not really know what shock is. Just how do you describe shock?

DR. GERARD: Shock is one of those collapsed states that results when one does not have enough pressure in the pumping system. We have some circuits—some pipes—in the body, and we have a certain amount of fluid that has to be pumped around this system. If the fluid is not there, then, the pressure is not there, and the third-story spigots will not run. That is all there is to it. It is not all a matter of bleeding out of the body when tissues are injured. The blood fluids bleed out into the tissues, and they are still no good for circulation.

DR. BRUNSCHWIG: The treatment of wound shock, therefore, is the prompt replacement of blood or plasma, as is actually done. The best substitute for blood is blood itself. The Russians are able to use blood, because they are fighting near their large blood-donor centers. Where we have troops thousands of miles from home, the transportation problem is such that we cannot send whole blood, so we are sending dried plasma, which, as an emergency treatment, is practically as effective.

DR. FISHBEIN: We expect two or three million people to be blood

donors during the year, and it would be much better if we could definitely count on five million people who would be willing to make this single contribution to the war effort.

Dr. Gerard: This is one of the places in which the laboratory has not yet caught up to the final problem. All sorts of blood substitutes have been tried, in the last war and in intervening times. Thousands of investigators in laboratories have spent years of time searching for other things which could be used, but, so far—and, as far as we can tell, for some time to come—human blood, or fractions of the human blood, is the only thing that will really do the job.

Dr. Brunschwig: I would not say the "only thing." There are so-called "blood substitutes"—salt solutions and sugar solutions—which will effectively combat shock very briefly.

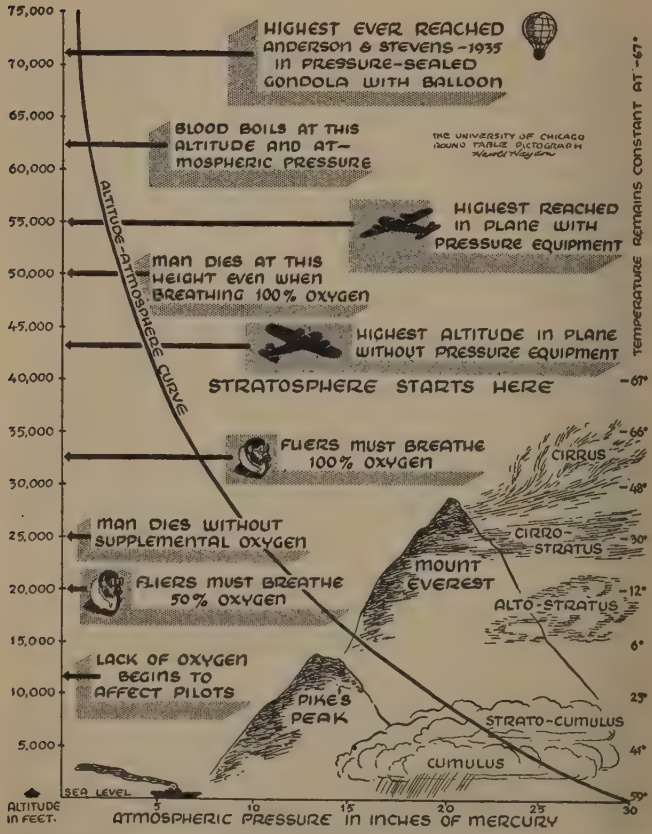
Dr. Fishbein: I suppose you mean by that that the effectiveness of research which is now being carried on under the Office of Scientific Research and Development and by the Committee on Blood and Blood Substitutes, with which, I believe, you are to some extent associated, is likely to yield us much more information on this particular point.

Dr. Brunschwig: Yes, indeed. A most important contribution would be the finding of a cheap, easily handled, easily transported blood substitute for the treatment of shock shortly after its development.

Dr. Fishbein: That reminds me of the other research projects, of which there are many now being carried on here at the University of Chicago and at other universities. I am thinking of the work on new kinds of anesthetics, like the spinal. Perhaps you could tell me some of the others that they are studying now, Dr. Brunschwig.

Dr. Brunschwig: Experiences with anesthesia in this war certainly will modify the anesthesia of the post-war period. In fact, they will permanently modify anesthesiology.

# EFFECTS OF DIFFERENT ALTITUDES ON FLIERS




Source: *Encyclopaedia Britannica Book of the Year, 1943.* As the climbing ranges of fighter and bomber planes have increased, scientists in all warring countries have intensified their research into the effects of cold and low atmospheric pressure on both men and machines.

Dr. Fishbein: I think that that is important. Very few people really know that one can be anesthetized without inhaling an anesthetic.

Dr. Gerard: There are any number of special war problems that are being worked out by many committees. All of them have to do with advances in war medicine. There is the whole problem of aviation medicine. It is the man, not the machine, which now sets the limit to aviation success.

The neuro-psychiatric problems that come up in fighting, the problems of tremendous exposure to cold and heat and shipwreck, and the tremendous diet problems are all being worked on by various groups in connection with war medicine.

But we must turn to a second subject and look at the way in which medical personnel, services, research, and manufacture have been mobilized to the service of this country at war.

Dr. Fishbein: The organization for war is one of the really outstanding achievements of American medicine. The organization of the personnel began long before the war—getting out the sixty thousand doctors who are necessary to care for the armed forces and, at the same time, providing for the public health and the health of those in industry.

Dr. Gerard: What does that leave for the civilians?

Dr. Fishbein: We count one hundred and eighty-six thousand doctors licensed to practice and some one hundred and fifty-two thousand actually in practice. Therefore, we have around ninety to a hundred thousand doctors left for the civilians.

In addition to that, we have standardized treatment for the armed forces through the various committees of the divisions of medical sciences of the National Research Council.

Dr. Gerard: What about the actual allocation of doctors?

Dr. Fishbein: The allocation of doctors is done through the procurement and assignment services of the various special agencies

to handle assignment not only of doctors but of nurses and particularly of dentists. I think that we ought to point out that there are thirty thousand dentists in the armed forces.[3]

DR. BRUNSCHWIG: It has been said that every man does not need a doctor but that every man does need a dentist continuously.

DR. FISHBEIN: They also need the nurses probably as much as they need the doctors and the dentists. Supplying nurses is really our chief problem right now. There are meetings going on at the present time to get out the nurses we need.

DR. GERARD: Aside from personnel, what about the matter of supplies? Of course, everybody has been hearing about the quinine shortage, and people are learning something about the tremendous effort of producing some billion tablets, I understand, of atabrine—the quinine substitute.

DR. FISHBEIN: There has been wonderful encouragement through the War Production Board and the Committee on Drugs and Medical Supplies of the National Research Council, acting in an advisory capacity, and particularly through the tremendous cooperation given by America's great pharmaceutical industry. They are making billions of tablets.

DR. GERARD: I would like to put in a word here for the man behind the man behind the syringe. The Office of Scientific Research and Development has been supporting a tremendous amount of very critical war research. Hundreds of war contracts to thousands of scientists, supported by millions of dollars, are leading to

---

[3] To compensate for the civilian shortage of doctors in certain areas, the Public Health Service and the Procurement and Assignment Service of the War Manpower Commission are making all possible efforts to achieve the optimum distribution of the doctors remaining for civilian practice. They are also trying to minimize needs by extensive preventive work and the increase of medical-care facilities. See footnote 6 on page 19 for additional information.

billions of value. There is no question of the immediate use of all those things, both now and for the long range.[4]

Dr. Fishbein: We ought also at least to mention the names of men like Dr. Louis Weed, who has been the director of the Division of Medical Sciences, and Dr. A. N. Richards, who has been the director of the medical end of the Office of Scientific Research and Development. These men are doing an important job.

---

[4] In 1940 the Medical Division of the National Research Council, which was created during the last war, was asked to create certain committees to give medical advice on matters arising from the war. There are under the Medical Division of the National Research Council more than forty committees, subcommittees, and conference groups. The membership amounts to about two hundred. It is intended that these committees shall provide informed opinion in fields of medicine and surgery and, as well, familiarity with the facilities of institutions and universities for research in particular directions.

"The Office of Scientific Research and Development and, by implication, the Committee on Medical Research, was assigned certain duties in the executive order which established it. Specifically, the Committee on Medical Research is charged with advising the Director of the Office of Scientific Research and Development. That office is directed to coordinate, to aid, and, where desirable, to supplement, the activities in research carried out in the Departments of War and Navy, and the other departments and agencies of the government; to initiate and support research affecting the national defense, or such research as may be requested by the government of any country whose defense the President deems vital to the defense of the United States. . . . .

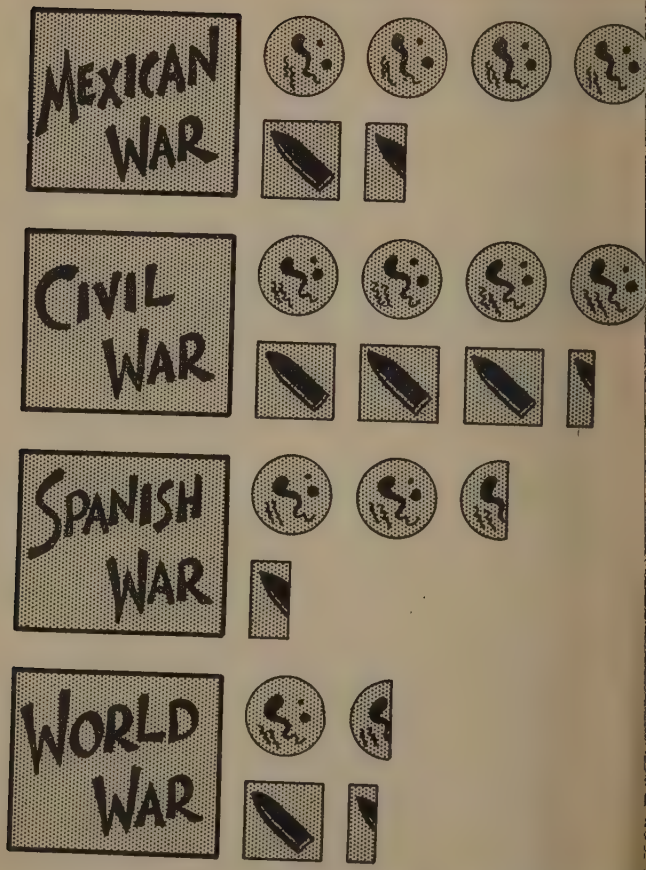
"There has thus been provided an advisory body, the National Research Council, acting to advise the medical branches of the armed services, and an agency to sponsor medical research directed to the war effort—the Committee on Medical Research. The chairmen of the National Research Council Committees and Subcommittees are consultants to the Committee on Medical Research.

"From the orders establishing the Office of Scientific Research and Development, there emerged certain stipulations which are worth some emphasis. These have been translated into certain more or less definite policies of the Committee on Medical Research. The chief function of the Committee on Medical Research is research. The function of medical advisor to the armed services is vested in the Division of Medical Sciences of the National Research Council. . . . . The Committee on Medical Research is, therefore, an effectuating or implementing agency to provide contact with facilities of research in the country for the benefit of the armed services by means of government contracts.

"The contracts are written on the basis of one year, or sometimes less, subject to renewal on approval, and on the basis of reimbursal for expense. They are not,

## AMERICAN SOLDIERS HAV

### Disease Has Been More De

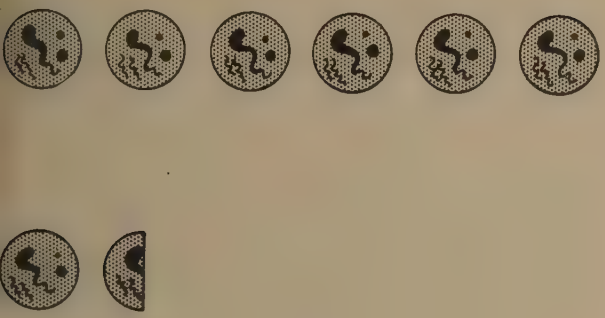



EACH COMPLETE SYMBOL EQUALS 10 SOLDI

Source: L. P. Ayres, *The War with Germany.*

# WITH THEIR BOOTS OFF

## Battle for American Armies



DIED PER 1,000 IN THE ARMED FORCES

Dr. Gerard: I wish that we could go on to mention the committee chairmen of a dozen committees and those on the thirty-six-odd subcommittees of the Council.

Dr. Brunschwig: Certainly even one or two contributions might justify the expenditure of all this money. For example, ever since man sailed the seas, some method was sought to make sea water drinkable. This has now been accomplished by research workers in the research laboratory of the United States Navy in Washington, D.C. Every life-raft and every lifeboat is equipped with an apparatus that will permit the alteration of sea water so that it may be consumed by man.

Dr. Fishbein: Then there is the Navy's work against blasts under water, which was one of the most important of its research projects. We must also remember that nowadays the armed forces are in the air, on the water, on the land, and under the water. Every one of those places of service has raised research problems for medicine.

Dr. Gerard: The main trouble with discussing this subject further is that all of us know so many secret and highly important

---

in that sense, grants in aid. To the proposed budget there is usually added a figure which is determined on the basis of percentage of the salary items to compensate the university for overhead expense in connection with the contract.

"Since August, 1941, when the committee first met, it has recommended for contracts 255 projects in medical research. These are, or have been, in progress at institutions in twenty-seven states and in Panama. Under them there are currently employed 467 doctors of medicine and 331 individuals with Ph.D. degrees. Those figures include women, physically disqualified physicians and those above the draft age, and some within the draft age, who are considered by responsible investigators and by their universities as essential.

"The total allocation of funds for these projects amounts to slightly over four million dollars. The subjects of investigation reflect problems of war, naturally, more than those of peace. The largest number of projects is in the field of aviation medicine, others deal with wound shock, the treatment of gas casualties, blood substitutes and transfusions, wounds, burns, surgical infections, infectious diseases, tropical diseases, neurosurgery and nutrition."

items of information that if we do not watch ourselves, we may inadvertently give them away.

Perhaps we should turn to our third question for discussion. After all, if we have so much service mobilized for the armed services, what about the civilians? There are still about ten times as many of them as there are soldiers.

DR. BRUNSCHWIG: We have mentioned that there are sixty thousand doctors in the armed forces. How does this leave the civilian population?

DR. FISHBEIN: Actually, we have now about one doctor for every fifteen hundred people in the civilian population. That is exceedingly good compared with the situation in Great Britain, for example, where there is one doctor for every twenty-four hundred and ninety people or compared with Sweden's one doctor for every twenty-two hundred people and Russia's one for every five thousand people.

DR. GERARD: What do we know about Germany?

DR. FISHBEIN: We know that Germany is suffering at this moment from a tremendous shortage of doctors, which has caused her to endeavor to take over the doctors of Holland, the doctors of Denmark, and the doctors of France in order to meet her great shortage.

DR. GERARD: It is very interesting that one is beginning to get news items from Germany that the high command is very apprehensive over the rising civilian death rates from disease with that doctor shortage.

DR. BRUNSCHWIG: We will be faced with the question of fatigue on the part of large sections of our populations. Perhaps we are beginning to see this come up now.

DR. GERARD: The death rate in this country as of 1942 was the

lowest in our history. Is it going to stay down, or is it going to rise slowly?[5]

DR. FISHBEIN: I believe that it will stay down, because the sickness rate is lower as well as the death rate. I am also very proud of the fact that, with a vastly increased birth rate, the maternal death rate has been steadily declining, which means that our health officials and our doctors are on the alert to meet every contingency as it develops.

DR. GERARD: If the maternal birth rate is an index of the degree of civilization of a country, as has been said, that is a very encouraging figure for the United States.

DR. FISHBEIN: Then there is the question of our food supply. We are really looking after that. A figure came from France, just two weeks ago, to the effect that the French are now getting along with twenty grams of protein per person a day. We are getting sixty to eighty grams of protein.

DR. GERARD: What does a low-protein diet do to one's resistance to disease?

DR. BRUNSCHWIG: There is no question but that it lowers resistance to infection. Patients whose body proteins are below normal are much more prone to all types of infections and to other diseases.

DR. GERARD: Therefore, with increasing fatigue, perhaps with a decreasing diet, with congestion, and with a progressing doctor shortage, there is some danger of a decay of slight amount in civilian health.

What are some of the ways on which we can get a sufficient distribution of the doctors who are left? There are large areas that now have no doctors.

---

[5] The death rate per thousand population was 13.1 in 1920, 11.8 in 1925, 11.4 in 1930, 11.0 in 1935, and 10.8 in 1940. For a further discussion of this field see William Fielding Ogburn, *War, Babies, and the Future* ("Public Affairs Pamphlet," No. 83 [New York, 1943]).

DR. FISHBEIN: Already the United States Public Health Service, the War Participation Committee of the American Medical Association, and the Procurement and Assignment Service are working very actively in encouraging the willingness of doctors to transfer to about four hundred areas in the United States where there may now be said to be acute shortages of doctors.[6]

---

[6] ". . . . Dr. Joseph W. Mountin, Assistant Surgeon General, summarizes the overall statistical picture this way: 'There was a pre-war registry of 180,000 registered physicians listed in the United States. Of these, 15,000 were full time employees of public health agencies, medical schools, insurance companies, etc.; 28,000 were more than 65 years old and evaluated as only one-third effective; 7,000 under 65 were completely or partially ineffective; 3,000 were residents in hospitals, and 42,000 were in the armed forces, as of Jan. 1, 1943.' These figures show, as of the first of this year, 95,000 fully effective doctors available for civilian practice, plus a percentage of service from some 32,000 others partly incapacitated by reason of age or other factors.

"During 1943, 11,000 of the 95,000 fully effective doctors were to be taken into the armed services, making a total of 53,000 physicians allotted to the care of sickness and injuries for an army estimated at 10,800,000 men when fully enlisted. This leaves 84,000 physicians, surgeons, specialists and general practitioners—plus 15,000 public health doctors, plus 5,000 interns and 3,000 residents, a total of 108,000 to care for the nation's remaining 120,800,000 civilians. These are the figures of the Procurement and Assignment Service.

"It is estimated that, assuming perfect distribution, there would thus be 1 effective doctor for every 1,118 persons or, in general practice, a ratio of 1 to 1,557. This is very close to the ratio of 1:1,500 'considered desirable from the standpoint of health protection.' But perfect distribution does not exist for many reasons and, short of compulsory shifts of doctors to critical localities, is not attainable.

"Dr. Mountin has stated that, 'in general, no military or industrial community should have less than a ratio of 1 physician to 3,000 population if its citizens are to have even a fair standard of care.' . . . .

"Everything possible is being done to assure the best possible distribution of the remaining physicians. Doctors are to be taken into the armed services only from those twenty states, plus the District of Columbia, which show the most favorable ratio between doctors and population. None are to be taken from fifteen specified states in which influx of workers has made shortage of medical care critical. States from which doctors are not to be taken are Alabama, Arizona, Delaware, Georgia, Idaho, Kentucky, Louisiana, Mississippi, New Mexico, North Carolina, South Carolina, Tennessee, Texas, West Virginia and Wyoming.

"Dr. Frank H. Lahey, chairman of the Directing Board, Procurement and

Dr. Brunschwig: It seems to me that right now is the time to agitate for a national practice act. There is no reason why an American citizen, qualified to practice in Illinois, cannot practice in Indiana—an adjacent state.[7]

---

Assignment Service, has reported a total of 1,469 doctors and 72 dentists relocated. Some of the shifts of doctors from one locality to another were arranged by the commission, others resulted from work by other agencies, and still others were unsolicited movements. Of these, 389 were relocated in the states listed which have an unfavorable doctor to population ratio . . . . " ("Doctor Shortage and Civilian Health in Wartime," a report prepared by the Office of War Information. This article may be found in the *Journal of the American Medical Association*, September 25, 1943, pp. 214–19).

[7] " . . . . One of the basic problems of relocations is the difficulty of licensure. Of the 604 doctors checked, 154 had crossed the state line barrier and, in a majority of cases, this entailed taking a new medical examination. These ordinarily are given only once or twice a year, but some states, recognizing the critical nature of the problem, have given as many as six. Only seven states have laws permitting temporary licensure. These are Delaware, Maine, Nevada, Pennsylvania, Washington, New York and Montana. One state, Florida, permits out of state doctors to practice there under supervision of the state medical director of civilian defense. Procurement and Assignment estimates that nineteen other states have laws making a similar arrangement possible, but Florida alone is exercising the privilege.

"Recently the War Manpower Commission's Procurement and Assignment Service endeavored to place some foreign doctors who have been licensed by the state of New York. These doctors had not yet been in this country long enough to become citizens, but all had their first papers. The service found that nine states had medical license reciprocity with New York, but none of these states could, by law, admit the foreign doctors. Four of these nine states require that doctors be citizens; the laws of another group of four forbid acceptance of graduates of foreign schools; the ninth requires that graduates of foreign schools have further education in the United States.

"Analysis of state licensure requirements, as applied to foreign doctors and listed by the State Board Number of the *Journal of the American Medical Association* for 1942, shows that twenty-eight states require full citizenship as a preliminary to practice and fourteen require first papers only. Those requiring full citizenship are Alabama, Arkansas, Delaware, Georgia, Idaho, Iowa, Kansas, Kentucky, Maine, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, Texas, Utah, Vermont, Virginia, West Virginia and Wyoming, plus Alaska, Hawaii and Puerto Rico. Those requiring only first papers are Colorado, Connecticut, Illinois, Louisiana, Maryland, Massachusetts,

Dr. Fishbein: That would be excellent if you could agree with every state that the quality of medical education in every state would be as good as it is in our very best institutions of medical education, but there are still many states which have low-grade medical education and which license low-grade doctors.

Dr. Gerard: I think that we must take a look, in the remaining minutes, at the problem of the post-war medical situation. First of all, let us discuss it in regard to the United States itself. We are going to have millions of men coming back from all parts of the world, bringing with them, as carriers or as cases, diseases that have been much less common here, or not here at all. How about the malaria problem, for instance?[8]

---

Nevada, New Mexico, New York, Pennsylvania, Rhode Island, South Dakota, Washington and Wisconsin. However, of those states that require only first papers, Louisiana withholds permanent license until citizenship is completed. Many states exempt Canadians from these requirements.

"Many other states will not accept doctors who do not have American medical degrees, and these include Arizona, Arkansas, Colorado, Illinois, Kansas, Kentucky, Maryland, Minnesota, Mississippi, Nevada, New Hampshire, New Mexico, North Carolina, North Dakota, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, Washington, West Virginia, Wisconsin and Hawaii . . . ." (*ibid.*).

[8] " . . . . Despite preventive work, typhus, spread in this country by the rat flea, was continuing to increase in 1942, when 3,700 cases were reported, a rise of 1,000 over the previous year. It is believed that the actual incidence of the disease is several times as great as the number of cases reported. Typhus has been gradually spreading northward along the East Coast and along the granary lines in the Middle West. The principal foci of infection are in Texas and Georgia. The way to stamp out typhus is to kill its host, the rat. Buildings in centers of infection are being ratproofed and the rats destroyed, a district at a time, whenever local authorities will assume responsibility for continuing the work. The Public Health Service has set up a field office for typhus control with headquarters in Atlanta. A field officer carrying out control work reported 231 rats killed by a single fumigation in one small grocery, plus an uncounted number of others gassed in their burrows. Twelve persons employed in that store had been infected with typhus in the two previous years.

"Extensive work in malaria control has been done in the last two years, and $6,000,000 is to be spent on such work in the coming year. Today a protected zone is being created around every war industry and every military camp in the

Dr. Brunschwig: There is no question but that the malarial problem will be one of the greatest public health problems in this country from now on and for many years. Soldiers, contracting malaria outside the United States, may be improved as a result of treatment, but we know now that, when they return, the attacks of malaria will recur.

Dr. Gerard: Of course, there is another type of medical problem that will be very prominent in the post-war world—that of aviation medicine. Large numbers—even millions—of people are going to

---

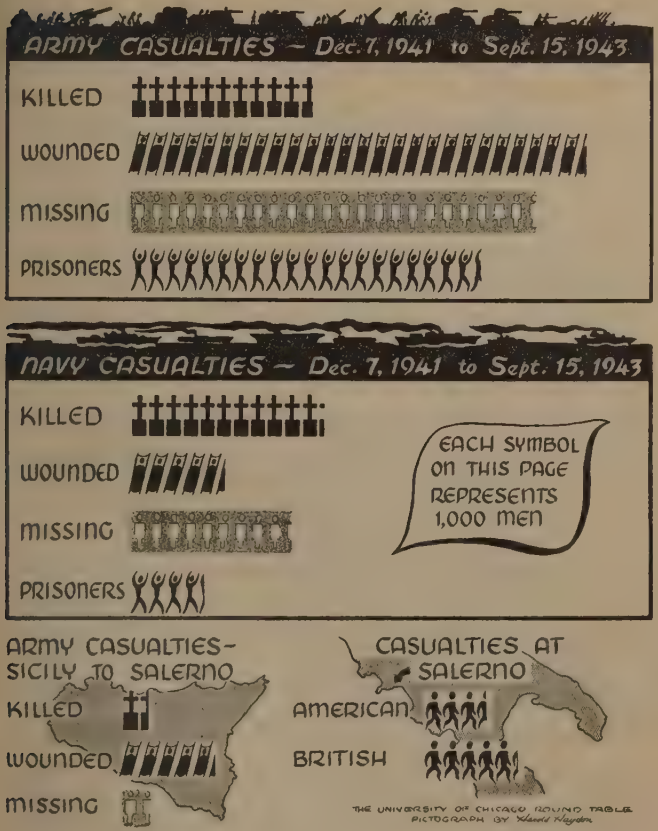
malaria belt. These projects have employed 3,700 men to protect 1,161 war establishments in eighteen states. As an index of the effectiveness of this work the Army experienced the lowest malaria rate in its history in continental United States, 0.6 per thousand men in 1942. So far this year the rate is 0.7.

"Considerable work is being done also in the Western states in control of bubonic plague, which is endemic there among wild rodents. Areas surrounding military camps are cleaned up, and there is a continual sampling of rats in urban communities along the West Coast. In the last year plague was found among rats in two communities, one on Puget Sound, the other near San Francisco. Immediate action to exterminate rats resulted in cleaning up the areas, and recent examinations have shown no traces of the plague.

"Diseases from other parts of the world unknown in this country are being guarded against also. Such exotic diseases may gain a foothold unless preventive measures are taken. Global warfare, which breaks down national barriers and makes worldwide communication easy, also opens a path for invading disease germs via plane and ocean vessel passengers and returning troops. Two examples of such exotic diseases—not yet successful invaders—are filariasis, a disease of the lymph glands transmitted by mosquitoes, and schistosomiasis, an intestinal infection prevalent in Africa, Central and North America and the West Indies, transmitted by snails. Mosquitoes and snails of the United States therefore are being studied to determine whether they might become carriers of these possible invaders.

"Because of the possibility of aircraft transporting insect carriers of plague, yellow fever, typhus and other infectious diseases, all planes from foreign ports are fumigated twice—once before arrival by flight personnel, and on arrival by the Public Health Service. New ocean vessels constructed for our wartime merchant marine incorporate Public Health Service ratproofing specifications. Ratproofing, incidentally, saves money and time. It saves steel during construction and saves dollars and hours after construction owing to the fact that ratproofed ships seldom require fumigation" (*ibid.*).

# CASUALTIES IN WORLD WAR II




be flying at high altitudes. The physiological limits of the body thus must be very greatly explored.

Dr. Fishbein: The research on aviation medicine is among the very finest that is being done, but from my point of view there is

still another problem, and that is the fact that twenty thousand doctors in the armed forces—or about that number by 1944—will be boys who have just had an internship or a short residency and who have never had any contact at all with private medical care. They are going to come back and want education in advanced methods, and they will have to be located. That is one of our biggest problems.

DR. GERARD: That almost throws us into the question of the European theater. Vice-Admiral McIntyre has made the statement that perhaps a third of the medical personnel will have to be kept abroad for some time after the war for medical reconstruction.

But there is another problem that you mentioned to me some time ago, Dr. Fishbein—the question of women as doctors.

DR. FISHBEIN: That has been a big problem. I talked with General Hines of the Veterans Hospital about this a few weeks ago, and he pointed out to me that already the veterans' hospitals are receiving women veterans. The special conditions that affect women, like cancer of the breast and similar conditions, are now going to be the problem of the Veterans Bureau. They may have to build some women's hospitals. We had never thought of that before.

DR. GERARD: With more women staying in industry, there will be a desire for more women in medicine probably.

What about the European and Asiatic situation after the war? What has happened to the medical schools there now?

DR. BRUNSCHWIG: Of course, in Asia and China there never were many medical schools, nor are there many more since the war.

DR. GERARD: And in Europe?

DR. BRUNSCHWIG: The medical schools of Holland, Belgium, and France have practically closed, thus leaving millions of people without the benefits of young, well-trained physicians.

DR. FISHBEIN: Our post-war planning committees are really

giving that serious thought. American medical educational institutions are going to have put on them the responsibility for graduate education of doctors from all over the world and the responsibility for supplying doctors to many areas of it, because world health, as all of you can see, is vital to the United States.

DR. GERARD: This doctor bottleneck is one that cannot be taken care of by the countries themselves. Their medical schools have not been functioning, or at least not functioning at an adequate level. It normally takes ten years of work to produce a doctor. We will have to supply doctors to these countries, as we will have to supply food and as we will have to supply medicines.

DR. FISHBEIN: There is a revolution in medical education, as you know, in Russia, where 90 per cent of the medical students are women.

DR. BRUNSCHWIG: America will certainly have to assume leadership in medicine.

DR. GERARD: Gentlemen, it seems to me that we have made a clear case that medicine, and particularly American medicine, which is our concern, has had enormous value in maintaining the health and morale of the fighting forces and of the civilian population. It is also clear that in the post-war situation we must depend upon American medicine particularly to bring help by means of health and good will to the world and thus cement international fellowship.

---

*The* ROUND TABLE, *oldest educational program continuously on the air, is broadcast entirely without script, although participants meet in advance, prepare a topical outline, and exchange data and views. The opinion of each speaker is his own and in no way involves the responsibility of either the University of Chicago or the National Broadcasting Company. The supplementary information in this transcript has been developed by staff research and is not to be considered as representing the opinions of the* ROUND TABLE *speakers.*

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933.

Of THE UNIVERSITY OF CHICAGO ROUND TABLE published weekly at Chicago, Illinois, for October 1, 1943.

State of Illinois
County of Cook } SS.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared William B. Harrell, who, having been duly sworn according to law, deposes and says that he is the Business Manager of THE UNIVERSITY OF CHICAGO ROUND TABLE and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit.

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, The University of Chicago, Chicago, Illinois; Editor, Catherine D. Johnson, University of Chicago, Chicago, Illinois; Managing Editor, None; Business Manager, William B. Harrell, University of Chicago, Chicago, Illinois.

2. That the owner is: The University of Chicago, Chicago, Illinois (no stockholders). Robert M. Hutchins, President; William B. Harrell, Business Manager; Harold H. Swift, Chairman of the Board of Trustees.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

[*Signed*] WILLIAM B. HARRELL, Business Manager

Sworn to and subscribed before me this 18th day of September, 1943.

[*Signed*] Gilbert P. Kordt, Notary Public

My commission expires January 29, 1946

# TEST YOUR *Reader's Quotient*

*This test will enable you to judge your grasp of the* ROUND TABLE *discussion. Turn to page 29 to check your answers.*

1. What per cent of wounded soldiers admitted to hospitals died in the first World War as compared to the present war?
2. What are some of the epidemics that have proved more deadly than the battles of previous wars?
3. American soldiers are inoculated for prevention of what diseases?
4. What outbreaks of disease have occurred recently, according to the speakers?
5. With what is the soldier equipped in order to treat himself when wounded?
6. Besides speed in handling of the wounded and the use of sulfa drugs, what other reason is advanced for success in the prevention of infection?
7. Has there been a reduction in the death rate of meningitis since the last war?
8. What is the treatment of wound shock?
9. What are the figures on the distribution of doctors between the civilians and the armed services?
10. What is the ratio of doctors to civilians in the United States and Great Britain?

# *More on This Topic*


COUNCELL, CLARA E., "War and Infectious Disease," *Public Health Reports*, March 21, 1941. *A comprehensive review of the effects of war upon health, covering wars before 1914, World War I, and the present war.*

"Fitness for Freedom," *Survey Graphic*, March, 1942. *Nineteen articles by eminent authorities on the problems of American health.*

"Front-Line Medicine," *Fortune*, July, 1943. *A report on the new drugs and medical techniques.*

"Heat and Cold," *Life*, February 8, 1943. *Medical research on the conditions of the tropics and the arctic.*

KAEMPFFERT, WALDEMAR, "The Coming Revolution in Medicine," *American Mercury*, July, 1943. *Explains the importance of chemistry.*

OMAN, CHARLES M., "Doctors at Sea," *Collier's*, August 28, 1943. *Describes the medical work of the United States Navy.*

PAINTON, FREDERICK C., "There Is No Such Thing as Shell Shock," *Reader's Digest*, October, 1943. *Reports the work of the Army psychiatrists.*

STEARNS, MYRON M., "Pain Blackout," *Saturday Evening Post*, January 2, 1943. *New developments in anesthesia.*

ZINSSER, HANS, *Rats, Lice and History.* Boston: Little, Brown & Co., 1935.


For reports on developments in war medicine see the current issues of *Hygeia*, *War Medicine*, *Public Health Reports*, and the weekly reports on medicine in *Time* and *Newsweek*.

# PUBLIC AFFAIRS PAMPHLETS ON PROBLEMS RELATING TO WAR MEDICINE

AMIDON, BEULAH, *Better Nursing for America*, No. 60. 1941.

———, *Who Can Afford Health?* No. 27 (revised). 1941.

BORSOOK, HENRY, and HUSE, WILLIAM, *Vitamins for Health*, No. 69. 1942.

BROUGHTON, PHILIP S., *Prostitution and the War*, No. 65. 1942.

FOSTER, WILLIAM TRUFANT, *Doctors, Dollars, and Disease*, No. 10 (reprinted). 1942.

HILL, HELEN, *The Kitchen in War Production*, No. 82. 1943.

ROWNTREE, JENNIE I., *This Problem of Food*. No. 33 (reprinted). 1942.

(Published by the Public Affairs Committee, 30 Rockefeller Plaza, New York City)

## ANSWERS TO *R.Q.* TEST ON PAGE 27

1. 7 per cent in World War I; 1 per cent in the present war. Page 1.

2. Typhus, plague, cholera, typhoid, dysentery, malaria, smallpox, yellow fever. Page 2.

3. Typhoid, smallpox, typhus, yellow fever, plague. Page 4.

4. Virus pneumonia, meningitis, and some dysentery. Page 5.

5. A compression bandage to stop hemorrhage; sulpha drug to prevent infection; and a small dose of morphine to relieve pain. Page 5.

6. A clean terrain. Page 6.

7. Yes. Page 7.

8. The prompt replacement of blood of plasma. Page 8.

9. 60,000 for the armed services; about 100,000 for civilians. Page 11.

10. In the United States, 1 doctor for every 1,500 civilians; in Great Britain, 1 doctor for every 2,490 civilians. Page 17.

# *Up to the Minute!*

Keep up with the problems facing democracy as discussed by the experts.

*Read* the ROUND TABLE discussions

*Subscribe* to the ROUND TABLE transcript

Address the University of Chicago
ROUND TABLE · Chicago · Illinois

I would like to receive the ROUND TABLE transcript regularly. Please enter my name on the subscription list—

☐ for six months at $1.00
☐ for one year at $2.00

Name.....

Address.....

City..... State.....

☐ I am enclosing the correct amount
☐ Please send me a bill